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NOTES ON *PERCOPSIS GUTTATUS* AGASSIZ AND *SALMO  
OMISCOMLYCUS* WALBAUM.

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At the meeting of the Boston Society of Natural History of November, 1848, Professor Louis Agassiz gave an account of two fishes obtained by him at Lake Superior, which he regarded as the types of new genera. Regarding one of these Agassiz said (Proc. Bost. Soc. Nat. Hist. IV, 1851, pp. 80-81): "The first of these two new species is a small fish, five or six inches long, in general shape resembling a *Leuciscus*. It has the adipose fin of the Salmonidae, but not the jaws of that family; these strongly resemble those of the *Percoids*. In its scales which are serrated on their margins, it also resembles the *Percoids*. Its characters are sufficiently peculiar to justify the establishment of a new family from this single species. Fossil species with similar characters are found in the Cretaceous formation. This is the second of the old 'fashioned' fishes, so to speak, corresponding in their structure to fossil species, which has been observed in this country. The other, the *Lepisosteus*, is the only living representative of a large family of fossil species.

"The existence of these two species has undoubtedly reference to the fact, that America is the oldest extensive continent which has been upheaved above the level of the sea."

He called the genus "Percopsis on account of its resemblance to the *Percoids*."

In his Lake Superior, 1850, Agassiz gives a fuller description of the genus and states that his "new genus, *Percopsis*, is just intermediate between *Ctenoids* and *Cycloids*: and that is what an ichthyologist, at present, would scarcely think possible—a

true intermediate type between Percoids and Salmonidæ, and should be considered as the type of a distinct family, under the name of Percopsides.”

Following which is a complete description of the species which he names *Percopsis guttatus*, remarking that the species was found in great abundance at the “Sault St. Mary, at Michipictin and at Fort William.”

It seems that the Rev. Zadock Thompson, author of “History of Vermont, Natural, Civil and Statistical,” had discovered the same fish and named it, without publication however, some time before Agassiz announced his discovery.

Concerning which Mr. Thompson has the following in the second edition of his History, 1853, Appendix, p. 33.

“The first knowledge I had of this fish was in the summer of 1841, when I found a specimen of it, 5 inches long, which was dead, and had been drifted up by the waves on the lake shore in Burlington. On examining it I found it to possess the adipose and abdominal fins of the trout, but in its teeth, gill-covers and particularly in its hard, serrated scales, to bear considerable resemblance to the perch family. After searching all the books within my reach without finding it described I concluded that it might be new, both in genus and species, and accordingly, in allusion to the above-mentioned properties, I described it in my journal under the provisional generic name of *Salmopeca*. A notice of this fish was omitted in my History of Vermont, published in 1842, because I had then only one specimen, and upon that one, with my little experience, I did not think it prudent to found a new genus and species. When Professor Agassiz was at Burlington in 1847 I submitted the above-mentioned specimen to his inspection, having at that time obtained no others. At first sight he thought it might be a young fish of the salmon family, but upon further examination he said it was not a salmon, nor any other fish with which he was acquainted.

“During the summer of 1847 I found three other specimens of this fish, dead, on the lake shore. One of these I took with me to Boston in September to the meeting of the Association of American Geologists and Naturalists, and put it into the hands of my friend, D. H. Storer, M. D., with a request that he would ascertain what it was and let me know.

“In May, 1849, I obtained from Winooski River a number

of living specimens, which I kept alive for some time; and, observing the great translucency of the living fish when held up toward the light I gave it the specific name of *pellucida*, having previously called it, in my journal, *coecta*, from its wing-like pectoral fins.

“About this time I noticed, in the proceedings of the Boston Society of Natural History, that Professor Agassiz had laid before the Society an account of a new genus of fishes discovered by him in Lake Superior, which he proposed to call *Percopsis*. Suspecting, from the brief description given of it, that it was identical with my *Salmoperca*, I wrote to Dr. Storer and inquired of him if the specimens from Lake Superior presented to the Society by Professor Agassiz were like the one I put into his hands in 1847. He wrote me that he could not say—that the specimen went out of his hands soon after he received it and he had not seen it since.

“In Professor Agassiz’s Lake Superior, page 248, I find an account of his genus *Percopsis* and his species *P. guttatus*, and I have no doubt that it is identical with my *Salmoperca pellucida*. Still, I have thought it best to let it remain, in this Appendix under the name I had given.”

Since Agassiz first named this species the name has withstood the vicissitudes that taxonomy has so frequently meted to many other systematic names of fishes as well as other animals.

It is perhaps unfortunate that the nomenclatural rules of priority of publication are so hard and fast that Thompson’s name for this fish could not have been retained, in justice to Mr. Thompson. It is surely unfortunate that those same rules require a name however barbarous and unmeaning to be accepted if it has proper qualifications of form and priority of publication.

Accordingly it comes about that another specific termination antedating both Agassiz and Thompson, for the genus *Percopsis*, must be substituted for that of *guttatus*.

In 1784 was published the Introduction to Arctic Zoology by Thomas Pennant. In the list of Fishes of Hudson’s Bay appears on page CXCII: “The *Omisco Maycus* is a new species of trout taken in May in Albany River, not exceeding four inches and a half long. It has five branchiostegous rays: first dorsal fin has eleven rays, ventral eight, anal seven, pectoral thirteen: tail forked: in the jaws are minute teeth: back, as

low as the lateral line, is of a pale color, marked with two longitudinal rows of black stelliform spots: below the lateral line the color silvery: the belly white."

Again on page 65, Walbaum's *Petri Artedi Genera Piscium, Additamentum*, 1792, is "18. *Salmo, Omisco Maycus*, radiis 5 membranae branchiostegae; cauda bifurca. *Pennant. Arct. Zool. introd.* p. 192. D. 11. P. 13. V. S. A. 7. C.

"Corpus fere spithameum. Dentes in maxillis minuti. Color in dorso usque ad lineam lateralem pallidus, duplici serie macularum nigrorum, stellatarum notatus; infra lineam lateralem argenteus; sub abdomine albus. Habitat in sinu Hudsonis."

According to the rules of nomenclature ichthyologists accept all of Walbaum's names as binomial and notwithstanding its form this name falls in the same category as the others. But it seems to have been disregarded or overlooked by the systematic writers prior to Jordan and Evermann (*Fishes of North and Middle America*, part 1, page 487, 1896), who place it in the synonymy of *Salmo salar*, probably assuming that it was a young salmon. The description of *Salmo Omisco Maycus* and an examination of specimens of *Percopsis guttatus* conclusively show that they are specifically identical, and must be designated as *Percopsis omiscomaycus* (Walbaum), however regrettable this circumstance may be.

Comparison of essential characters in Pennant's (Walbaum's) description of the *Omisco Maycus* with the same characters in Agassiz's description of *Percopsis guttatus*:

	PENNANT (WALBAUM)	AGASSIZ
1. Maximum length . . . . .	4½ inches	6 inches
2. No. of branchiostegals . . . . .	5	6
3. No. of first dorsal rays . . . . .	11	2, 10
4. No. of anal rays . . . . .	7	1, 7
5. No. of ventral rays . . . . .	8	8
6. Shape of caudal fin . . . . .	"forked"	"fureated"
7. No. of pectoral rays . . . . .	13	12
8. Teeth . . . . .	"minute"	"excessively fine"
9. Color . . . . .	2 rows of black spots on side of back.	Sometimes in 2 rows

Notes applying to the above comparison.

1. Jordan and Evermann give the maximum length of *Percopsis guttatus* as 6 inches. The species will not average over 4 or  $4\frac{1}{2}$  inches in specimens at hand.

2. The branchiostegals are not uniformly 6. In several specimens examined by the writer there are only 5 on a side.

3. There are only eleven developed dorsal rays, the spines being small, inconspicuous and adherent to the first ray.

4. Anal uniformly with 7 developed rays with inconspicuous rudimentary spine adherent to the first ray.

5. Ventral rays are uniformly 8.

6. Caudal fin always strongly forked.

7. Pectoral varies in number of rays.

8. The teeth of even a  $4\frac{1}{2}$  inch trout or salmon would hardly be called "minute."

9. Seldom more than two rows of spots on the side of the back and one row along the dorsal median line.

The characters conspicuously distinguishing the *Omisco Maycus* from any Salmonoid are:

No Salmonoid has so few branchiostegal rays. *Coregonus quadrilateralis* according to Richardson, sometimes with 8 rays, comes nearest to it, but the number of anal rays in the whitefish far exceed the number in *Percopsis*.

No Salmonoid other than some white fish has so few ventral rays, and as previously mentioned the anal of the whitefish exceeds the *Percopsis* in number of rays. Besides no whitefish has teeth on its jaws.

The teeth of the salmon or trout are comparatively large.

*Salmo salar* is not recorded from Hudson Bay. Lowe mentions it as occurring in Ungava Bay, the most westward point of its range.

*Cristivomer namaycush* and perhaps one or more species of *Salvelinus* occur in the region but the characters above mentioned preclude these forms.

In his Families of Fishes, 1872 (Smithsonian Misc. Collections), Gill included the Family *Percopsidae* in the order *Isospondyli*, to which, from the structure of the species, it would seem that it was more closely related than to the Acanthopteri, owing to the fact that the so called spines are very weak and similar to the usual simple or rudimentary rays of the Cyprin-

idae and the majority of the characters are of that order. But later another fish of the family was discovered by Eigenmann, in the Umatilla River, Oregon, still more decidedly percoid in its structure, justifying the provisional disposition of the family in the Acanthopteri by Jordan and Evermann.

This fish was described by Eigenmann and Eigenmann as a new genus and new species under the name of *Columbia transmoutana*, in Science, Oct. 21, 1892, p. 233.

In apparent recognition of the generic name bestowed upon the fish by Thompson, Jordan and Evermann have established the suborder *Salmopercae* for these fishes, of which they have the following to say:

“We place provisionally as a suborder of the *Acanthopteri*, a singular group of archaic fishes, relics of some earlier fauna, and apparently derived directly from the extinct transitional forms through which *Haplomi* and *Acanthopteri* have descended from allies of the *Isospondyli*. The group shows the remarkable combination of true fin spines, ctenoid scales, and a percoid mouth, with the adipose fin, abdominal ventrals, and naked head of the *Isospondyli*. The relations of the *Percopsidæ* with such archaic spiny rayed fishes as *Aphredoderus* and *Elassoma* are certainly not remote and the close resemblance of the head of *Percopsis* to that of *Gymnocephalus* (*Acerina*) may be more than accidental.”

Accordingly the classification of this little group is as follows:

Order. Acanthopteri.  
 Suborder. Salmopercae.  
 Family. Percopsidae.  
 Genera. } *Percopsis*, *omiscomaycus*.  
           } *Columbia*, *transmoutana*.

Key to the Genera. [After Jordan and Evermann.]

a. Dorsal fin with 2 feeble, slender spines or simple rays; anal with 1 slender spine; scales most strongly ctenoid on caudal peduncle; posterior margin of preopercle entire or with feeble crenulations; lateral line developed, the tubes small; form slender; the body translucent. *Percopsis*.

aa. Dorsal and anal each with two very strong spines; ventral spine evident; scales most strongly ctenoid on anterior part of body; posterior margin of preopercle with a few short but

strong spines; lateral line imperfect, the tubes more or less obsolete; form robust, the substance more or less opaque. *Columbia*.

**Percopsis omiscomaycus.** (Walbaum).

*Omisco Maycus*, Pennant Arctic. Zool. Introd., p. CXCH, 1784; (ibid, Second Ed. p. CCXCVIII, 1792).

*Salmo Ormisco Maycus*, Walbaum, Artedi Gen. Pisc., p. 65, 1792; (after Pennant).

*Percopsis guttatus*, Agassiz, Lake Superior, p. 286, pl. I, fig. 1 and 2, 1850.

*Salmoperca pellucida*, Thompson, Hist. Vermont, second ed., appendix, p. 33, with figure, 1853.

*Percopsis hammondi*, Gill, Proc. Ac. Sci., Phila., 1864, p. 151.

“Head  $3\frac{4}{5}$ ; depth about  $4\frac{1}{3}$ ; D. II, 9; A. I, 7; V. I, 8; scales 50, head slender and conical; mouth small, subinferior, maxillary not nearly reaching front of orbit. Caudal peduncle long and slender. Pale olivaceous, a silvery stripe along the lateral line, becoming obsolete forward; upper parts with obscure round dusky spots made of dark points, peritoneum silvery. Length 6 inches. Spawns in spring. Delaware River (Abbott) to Ohio River (Sloan; Gilbert); Kansas and northward; very abundant in the Great Lakes; in all streams tributary to Hudson Bay, Red River of the North, and found by Eigenmann in the Saskatchewan as far as Medicine Hat; rare in streams south of Lake Erie, although occasionally taken throughout the upper Mississippi Valley.” [Jordan and Evermann.]

Specimens from Hudson Bay region in the general locality of Albany River are reported from Moose Factory, at the mouth of Moose River, emptying into James Bay or southern extremity of Hudson Bay, which is the next considerable river shown on map, south of Albany River.

Specimens also from Nelson River a long distance north of Albany River and flowing directly into Hudson Bay. [Bean in Proc. U. S. Nat. Mus., 1881, pp. 127 and 128.]